

Claims 1-11, 13, 16, 18, and 29 are pending in this application, with Claims 1, 18, and 29 being independent. Claims 12, 14, 15, 17, 19-28, and 20-58 have been cancelled without prejudice.

Claims 1, 3, 4, 7, 11, 16, 18, and 29 have been amended. Applicant submits that support for the amendments can be found in the original disclosure, and therefore no new matter has been added.

Claims 1, 4, 7, 12, 14, 18, 19, 21, 22, 29, 31, 33, 34, 38, 39, 45, 49, 52, 56, and 57 were rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite. Applicant submits that many of the Examiner's objections have been mooted by the cancellation of certain claims. With respect to the remaining claims, they have been reviewed and amended in view of the Examiner's comments. Applicant submits that the amendments obviate the Examiner's objections, and therefore Applicant requests reconsideration and withdrawal of this rejection.

Claims 1-11, 14-26, 29-38, and 41-58 were rejected under 35 U.S.C. §102 as being anticipated by U.S. Patent No. 5,846,134 (Latypov). Also, Claims 1-11, 13-26, 28-38, and 40-58 were rejected under Section 102 as being anticipated by U.S. Patent No. 5,913,727 (Ahdoot). Applicant respectfully traverses those rejections for the reasons discussed below.

As set forth in independent Claims 1, 18, and 29 the present invention includes, *inter alia*, the features of estimating a relative position of a second portion of a user with respect to a first portion of the user in accordance with results of detection by first and second sensors attached to the user, generating action information on the basis of the estimated relative position, and determining a user instruction corresponding to the

generated action information and outputting the determined user instruction to an apparatus or program.

Due to the above-mentioned features, a user instruction is determined based on a relative position of one portion of the user relative to another portion. This provides improved accuracy in recognizing user instructions over the prior art. For example, when the prior art systems determine a user instruction by using only positions detected by sensors attached to the user (e.g., positions of the user's hands), the determined instruction may not be the one the user intends. See, for example, the discussion at page 2, line 21 through page 3, line 15 of Applicant's specification.

Applicant submits that the cited art fails to disclose or suggest at least the above-mentioned features. In particular, Applicant submits that both Latypov and Ahdoot merely disclose detection a position of a portion of a user and controlling an interactive processing based on the detected position. Both of those patents are silent regarding estimating a relative position of a second portion with respect to a first portion and generating action information on the basis of the estimated relative position.

The Office Action cites Col. 5, lines 8-13 and lines 35-40 of Latypov as allegedly disclosing storage of "values corresponding to the positions of the first and second portions as they relate to each other." Applicant respectfully disagrees. The cited portion of Latypov describes determining the magnitude and direction of movement of a user relative to a shell. It does not disclose or suggest estimating a relative position of a second portion of the user with respect to a first portion of the user. Similarly, Ahdoot describes a plurality of body sensing means, but these are merely used to determine the

position of each body sensing means and not to estimate a relative position of a second portion of the user with respect to a first portion of the user.

The other cited art also fails to disclose or suggest the above-mentioned features.

Accordingly, Applicant submits that the independent claims are patentable over the cite art.

The dependent claims recite additional features that further distinguish the present invention from the cited art. Those claims are patentable for the same reasons as the independent claims and further in view of the additional features they recite. Further individual consideration of the dependent claims is requested.

For the foregoing reasons, Applicant submits that this application is in condition for allowance. Favorable reconsideration, withdrawal of the rejections set forth in the above-mentioned Office Action, and an early Notice of Allowance are requested.

Applicant's undersigned attorney may be reached in our Washington, DC office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



Attorney for Applicant
Brian L. Klock
Registration No. 36,570

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200
BLK



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APPENDIX

MARKED-UP VERSION SHOWING AMENDMENTS TO CLAIMS

1. (Twice Amended) A user interface apparatus comprising:

a first sensor attached to a first portion of a body of a user;

a second sensor attached to a second portion of the user, which is different from the first portion;

[means for estimating an action of the user on the basis of both the absolute positions of said first and second sensors and] an estimating unit arranged to estimate a relative position of the second portion with respect to the first portion [, which are detected by] in accordance with results of detection by said first and second sensors [, and for generating action information corresponding to the action of the user];

a generation unit arranged to generate action information on the basis of the estimated relative position;

[determination means for determining] a determination unit arranged to determine a user instruction corresponding to the generated action information [,] and [image generating means for generating] an image generating unit arranged to generate an image on the basis of said user instruction..

3. (Amended) The apparatus according to claim [1] 2, wherein the second portion is a hand.

4. (Amended) The apparatus according to claim 1, wherein said first sensor detects a location and posture [location/posture] of the first portion.

7. (Amended) The apparatus according to claim 1, wherein the action information includes information which pertains to a state change of the second portion with respect to a location or a location and posture [location/posture] of the first portion, and information which pertains to a location change acceleration of the state change.

11. (Amended) The apparatus according to claim 1, wherein said determination unit [means] decomposes the determined user instruction into a plurality of instruction operands, and outputs the operands.

16. (Amended) The apparatus according to claim 1, further comprising [14, wherein said display means is] a head-mounted display for displaying the image generated by said image generating unit.

18. (Twice Amended) A user interface method for outputting a user instruction to a predetermined apparatus or program, comprising:

the step of detecting a location of a first portion of a body of a user and a location of a second portion of the user, which is different from the first portion, by using first and second sensors attached to the user; [and]

the step of estimating [a user instruction by analyzing an action of the user on the basis of both the detected locations of the first and second portions and] a relative position of the second portion with respect to the first portion in accordance with results of detection by the [, which are detected by said] first and second sensors in said detecting step; [, and]

the step of generating action information on the basis of the estimated relative position; and

the step of determining a user instruction corresponding to the generated action information and outputting the determined user instruction to the apparatus or program.

29. (Twice Amended) A computer readable storage medium, which stores a program of a user interface method for outputting a user instruction to a predetermined apparatus or program, storing:

a program step of detecting a location of a first portion of a body of a user and a location of a second portion of the user, which is different from the first portion, by using first and second sensors attached to the user; [and]

a program step of [estimating a user instruction by analyzing an action of the user on the basis of both the detected locations of the first and second portions and] estimating a relative position of the second portion with respect to the first portion in accordance with results of detection by the [, which are detected by said] first and second sensors in said program step of detecting; [, and]

a program step of generating action information on the basis of the estimated relative position; and

a program step of determining a user instruction corresponding to the generated action information and outputting the determined user instruction to the apparatus or program.

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